

FORM PTO-1449 (SUBSTITUTE)

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

Attorney Docket No.:

Serial No.

GR 96 P 1650 P

09/221,789

Applicant

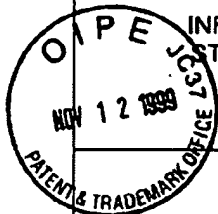
Ulrike Reeh et al.

Filing Date

Group Art Unit

December 28, 1998

2815

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT
(37 CFR 1.98(b))

U.S. PATENT DOCUMENTS

EXAMINER INITIALS		PATENT NO.	DATE	PATENTEE	CLASS	SUB CLASS	FILING DATE
<i>[Signature]</i>	A	3,691,482	09/12/72	Pinnow et al.			
<i>[Signature]</i>	B	3,699,478	10/17/72	Pinnow et al.			
<i>[Signature]</i>	C	3,819,974	06/25/74	Stevenson et al.			
	D	5,019,746	05/28/91	Merg			
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FOREIGN PATENT DOCUMENT

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB CLASS	TRANSL. YES NO
<i>[Signature]</i>	J	97 933 047.9		Europe			X
<i>[Signature]</i>	K	198585/1996	07/29/96	Japan			X
<i>[Signature]</i>	L	244339/1996	09/17/96	Japan			X
<i>[Signature]</i>	M	245381/1996	09/18/96	Japan			X
<i>[Signature]</i>	N	359004/1996	12/27/96	Japan			X

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

<i>[Signature]</i>	O	German Utility Model G 90 13 615.2, dated January 24, 1991, electroluminescent or laser diode
<i>[Signature]</i>	P	Japanese Patent Abstract No. 5-152609 (Tadatsu), dated June 18, 1993

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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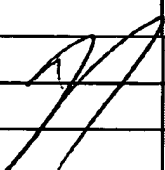
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U.S. PATENT DOCUMENTS

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	A						
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FOREIGN PATENT DOCUMENT

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB CLASS	TRANSL. YES NO
	J	081010/1997	03/31/97	Japan	 		X
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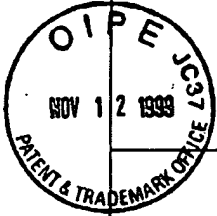
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	O	Japanese Patent Abstract 07176794 A (Yoshinori), dated July 14, 1995
	P	Japanese Patent Abstract 08007614 (Yoshinori), dated January 12, 1996

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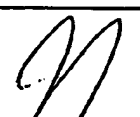

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	J						
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	O	Thomas Jüstel et al.: "Neue Entwicklungen auf dem Gebiet lumineszierender Materialien für Beleuchtungs- und Displayanwendungen" [new developments in the field of luminescent materials for lighting and display applications], Angew. Chem. 1998, 110 pp. 3250-3271
	P	D.J. Robbins: "The Effects of Crystal Field and Temperature on the Photoluminescence Excitation of Ce ³⁺ in YAG", J. Electrochem. Soc.: Solid State Science and Technology, September 1979, Vol. 126, No. 9, pp.1550-1555

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	O	Glen A. Slack et al.: "Optical Absorption of $\text{Y}_3\text{Al}_5\text{O}_{12}$ from 10- to 55000- cm^{-1} Wave Numbers", Physical review, Vol. 177, No. 3, 15 January 1969, pp. 1308-1314
	P	Shuji Nakamura et al.: "The blue laser diode: GaN based light emitters and lasers", Springer Verlag, Berlin, 1997, pp. 216-219, 328

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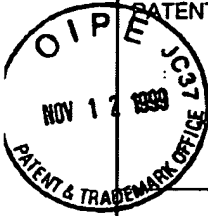
	O	G. Blasse et al.: "A New Phosphor For Flying-Spot Cathode-Ray Tubes For Color Television: Yellow-Emitting $Y_3Al_5O_{12}-Ce^{3+}$ ", Applied Physics Letter, Vol. 11, No. 2, 15 Jhuly 1967, pp. 53,54
	P	White LED Lamp by Nichia, copy of a Japanese Newspaper, dated September 1996

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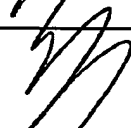
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	O	Mary V. Hoffman: "Improved color rendition in high pressure mercury vapor lamps", Journal of IES, January 1977, pp. 89-91
	P	B. M. J. Smets: "Phosphors Based On Rare-Earths, A New Era In Fluorescent Lighting", Materials Chemistry and Physics, 16 (1987), pp. 283-299

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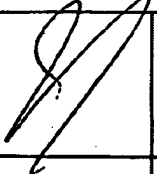
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FOREIGN PATENT DOCUMENT

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB CLASS	TRANSL. YES NO
	J						
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	L						
	M						
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	O	Frank Möllmer et al.: "Siemens SMT-TOPLED für die Oberflächenmontage", [Siemens SMT-TOPLEDS for surface mounting], Siemens Components 29, 1991, No. 4, pp. 147-149
	P	

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Substitute Form PTO-1449

U.S. Department of Commerce
Patent and Trademark OfficeAttorney's Docket No.
12406-003001Application No.
09/221,789Information Disclosure Statement
by Applicant

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Ulrike Reeh et al.Filing Date
December 28, 1998Group Art Unit
2815

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(37 CFR § 1.52(b))

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TC 1700

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
<i>JS</i>	B AA	6,069,440	05/30/2000	Shimizu et al.	313	486	
<i>JS</i>	B AB						
<i>JS</i>	B AC						

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
<i>JS</i>	B AD	52-40959	10/15/1977	Japan	33	00	X	
<i>JS</i>	B AE	9-73807	03/18/1997	Japan	8	00	X	
<i>JS</i>	B AF	50-43913	04/21/1975	Japan	15	05	X	
<i>JS</i>	B AG	7-99345	04/11/1995	Japan	33	00		X
<i>JS</i>	B AH	46-7462	12/22/1971	Japan				X
<i>JS</i>	B AI	5-152609	06/18/1993	Japan	33	00	X	
<i>JS</i>	B AJ	7-176794	07/14/1995	Japan	33	00		X
<i>JS</i>	B AK	2-91980	09/29/1988	Japan			X	
<i>JS</i>	B AL							
<i>JS</i>	B AM	6-69546	03/11/1994	Japan	33	00	X	
<i>JS</i>	B AN	11-220174	08/10/1999	Japan	33	00	X	
<i>JS</i>	B AO							
<i>JS</i>	B AP							

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
<i>JS</i>	B AQ	English Translation of Japanese 01175103 A, July 11, 1989.
<i>JS</i>	B AR	English Translation of Japanese 01260707 A, October 18, 1989.
<i>JS</i>	B AS	Phosphor Handbook, English Translation of (BAT)
<i>JS</i>	B AT	"Phosphor Handbook", Ohm 1987, pp. 172-174, 188-189, 270, 275-276, 383-385.
<i>JS</i>	B AU	Nakamura, Shuji et al., "Candela-class high-brightness InGaN/AlGaN double-heterostructure blue-light-emitting diodes, App. Phys. Lett 64 (13) March 28, 1994, pp. 1687-1689.

Examiner Signature

Date Considered

EXAMINER: Initials/Citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Disclosure Form (PTO-1449)

Substitute Form PTO-1449

U.S. Department of Commerce
Patent and Trademark OfficeAttorney's Docket No.
12406-003001Application No.
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(37 CFR §1.98(b))

Applicant
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December 28, 1998Group Art Unit
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TC 1700

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Examiner Initial	Desig. ID	Document
<i>[Signature]</i>	B AV	Nakamuri, T, "Nichia Chemical starts the sample shipment of white light Emitting Diode", Nikkei Electronics, September 23, 1996 (No. 671), pp. 15-16.
	B AW	English translation of (BAV)
	B AX	Schlottner, P. et al., "Luminescence conversion of blue light emitting diodes", Applied Physics A, Springer Verlag (publ.), April 1997, vol. 4, pp. 417-418.
	B AY	Material Safety Data Sheet, pp. 1 and 2, and Lamp Phosphor Data Sheet of Phosphor NP-204 of Nichia Corporation.
	B AZ	"Phosphor and Emitter", Osram GmbH, June 1997.
	B AAA	Proceedings of 264 th Institute of Phosphor Society, "Development and Application of high bright white LED Lamps", November 29, 1996, pp. 5-14.
	B ABB	English Translation of (BAAA)
	B ACC	English Translation of Japanese Patent Application No. 245381, Filed September 18, 1996, Nichia Chemical Industries Ltd.
	B ADD	English Translation of Japanese Patent Application No. 359004, Filed December 27, 1996, Nichia Chemical Industries Ltd.
	B AEE	English Translation of Japanese Patent Application No. 198585, Filed July 29, 1996, Nichia Chemical Industries Ltd.
	B AFF	English Translation of Japanese Patent Application No. 018010, Filed March 31, 1997, Nichia Chemical Industries Ltd.
<i>[Signature]</i>	B AGG	Nikkei Sangyo Shimbun (Nikkei Industrial Newspaper), September 13, 1996.
	B AHH	English Abstract of Japanese 7-99345, April 11, 1995

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Examiner Signature <i>[Signature]</i>	Date Considered 7/04
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Substitute Disclosure Form (PTO-1449)

Substitute Form PTO-1449
(Modified)U.S. Department of Commerce
Patent and Trademark OfficeAttorney's Docket No.
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Ulrike Reeh et al.Filing Date
December 28, 1998Group Art Unit
2815

U.S. Patent Documents

Examiner (Initial)	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	AA	3,312,851	04/1967	Flowers et al.			
	AB	3,316,109	04/1967	Rimbach			
	AC	3,440,471	04/1969	Baczewski et al.			
	AD	3,483,416	12/1969	G.A.W. Vermeulen			
	AE	3,510,732	05/1970	Amans	257	77	
	AF	3,565,815	02/1971	Christy			
	AG	3,621,340	11/1971	Shobha Singh			
	AH	3,659,136	04/1972	William Grodkiewicz			
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	AL	3,742,277	06/1973	Peters			
	AM	3,743,833	07/1973	Mantic et al.			
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	AR	4,298,820	11/03/1981	Bongers et al.	313	463	
	AS	4,479,886	10/30/1984	Kasenga	252	301.4	
	AT	4,684,592	08/1987	Matsuda et al.			
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	AW	4,716,337	12/29/1987	Huiskes et al.			
	AX	4,727,283	02/23/1988	van Kemenade et al.	313	487	
	AY	4,780,752	10/25/1988	Angerstein et al.	357	72	
	AZ	4,816,369	03/1989	Matsuda et al.			
	AAA	4,818,434	04/1989	Lindmayer			

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(37 CFR 1.102(b))

U.S. Patent Documents

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	BA	4,825,124	04/1989	Sigai			
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	BS	5,788,881	08/1998	Chadha et al.			
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	BV	5,813,753	09/1998	Vriens et al.			
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	BX	5,906,771	05/1999	Watkins et al.			
	BY	5,952,036	09/1999	Tadaki et al.			
	BZ	5,994,722	11/1999	Averback et al.			
	BAA	6,245,259	06/12/2001	Hohn et al.	252	301.36	


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Information Disclosure Statement by Applicant (Use several sheets if necessary)		Applicant Ulrike Reeh et al.	
		Filing Date December 28, 1998	Group Art Unit 2815

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Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	CA	6,613,247	09/02/2003	Hohn et al.	252	301.36	
	CB	6,600,175	07/29/2003	Baretz et al.	257	100	
	CC	2004/0016938	01/29/2004	Baretz et al.	257	100	
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	CE						

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Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
	CF	0333162	09/20/1989	EPO				
	CG	2004989	12/05/1969	France			Abstract Only	
	CH	2043403	02/12/1971	France				
	CI	2044727	02/26/1971	France			Abstract Only	
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	CK	2018353C	10/29/1970	Germany			Abstract Only	
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	CO	1263185	02/09/1972	Great Britain				
	CP	1317731	05/23/1973	Great Britain				
	CQ	1317732	05/23/1973	Great Britain				
	CR	2000173	01/04/1979	Great Britain				
	CS	2149416	06/12/1985	Great Britain				
	CT	00864860	03/08/1996	Japan			Abstract Only	
	CU	02011694	01/16/1990	Japan			Abstract Only	
CV	2080970	03/22/1990	Japan			Abstract Only		

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	DA	03220286	09/27/1991	Japan			Abstract Only	
	DB	03287690	12/18/1991	Japan			Abstract Only	
	DC	05315652	11/26/1993	Japan			Abstract Only	
	DD	05315653	11/26/1993	Japan			Abstract Only	
	DE	05315624	12/17/1993	Japan			Abstract Only	
	DF	05347432	12/27/1993	Japan			Abstract Only	
	DG	6013075	01/21/1994	Japan			Abstract Only	
	DH	6017130	01/25/1994	Japan				
	DI	06053554	02/25/1994	Japan			Abstract Only	
	DJ	06076754	03/18/1994	Japan			Abstract Only	
	DK	06163988	06/10/1994	Japan			Abstract Only	
	DL	06204570	07/22/1994	Japan			Abstract Only	
	DM	06306356	11/01/1994	Japan			Abstract Only	
	DN	60090680	11/06/1986	Japan				
	DO	04137570	05/12/1992	Japan			Abstract Only	
	DP	081010/1997	3/97	Japan			X	
	DQ	JP 01-179471	07/17/1989	Japan				
	DR	JP 02-927279	07/28/1999	Japan				
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	DV	JP 08-007614	01/12/1996	Japan			X	
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Examiner Signature

Date Considered

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Disclosure Form (PTO-1449)

Substitute Form PTO-1449
(Modified)U.S. Department of Commerce
Patent and Trademark OfficeAttorney's Docket No.
12406-003001Application No.
09/221,789**Information Disclosure Statement
by Applicant**

(Use several sheets if necessary)

Applicant
Ulrike Reeh et al.Filing Date
December 28, 1998

Group Art Unit

2815

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
	EA	JP 09-028642	02/04/1997	Japan				
	EB	JP 46-39866	06/12/1973	Japan				
	EC	JP 47-017684	09/09/1972	Japan				
	ED	JP 48-6962	03/02/1973	Japan				
	EE	JP 49-1221	01/12/1974	Japan				
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	EG	JP 56-005884	01/21/1981	Japan				
	EH	JP 62-20237	01/28/1987	Japan				
	EI	98/05078	05/02/1998	WIPO	H01L	33/00	Abstract Only	
	EJ							
	EK							

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	EL	Robbins et al., "Single Crystal Y3Al5O12: Tb Phosphor Produced by Ion Implantation", <u>Journal of the Electrochemical Society</u> , Vol. 129, No. 4, pp. 816-820
	EM	Poort et al., "Optical properties of Eu2+-activated orthosilicates and orthophosphates" <u>Journal of Alloys and Compounds</u> , Vol. 260, No. 1-2, pp. 93-97 (September 12, 1997)
	EN	Japanese Patent Abstract 08007614 (Yoshinori), dated January 12, 1996
	EO	English Translation of Proceedings of 264 th Institute of Phosphor Society, "Development and Application of high bright white LED Lamps", November 29, 1996, pp. 5-14.
	EP	<u>Journal of the Electrochemical Society</u> , Solid-State Science and Technology, "Preparation of Y ₃ Al ₅ O ₁₂ Based Phosphor Powders", February 1987, pp. 493-498.
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	ET	Japanese Internet Literature, "Preparing Nearly-Spherical Aluminate Phosphors of Uniform Size".
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	EV	R.W.G. Hunt, "Revised Colour-Appearance Model for Related and Unrelated Colours", <u>Color Research and Application</u> , Vol. 14, 1991 p. 146-165.

Examiner Signature

Date Considered


EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 12406-003001	Application No. 09/221,789
Information Disclosure Statement by Applicant (Use several sheets if necessary)		Applicant Ulrike Reeh et al.	
DEC 27 2000 JCA PTO-CFR 51.202 (MAY 2000)		Filing Date December 28, 1998	Group Art Unit 2815

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	FA	Yoshinobu Nayatani, "Revision of the Chroma and Hue Scaled of a Nonlinear Color-Appearance Model", Color Research and Application, Vol. 20, 1995, p. 143-155.
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	FH	Translation of JP 48-39866, 05/18/1973, Japan
	FI	Translation of JP 6-0009, 08/19/1994, Japan
	FJ	Translation of JP 5-50611, 07/02/1993, Japan
	FK	Translation of JP 5-72553, 10/05/1993, Japan
	FL	
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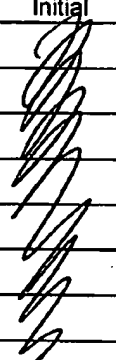
Examiner Signature 	Date Considered 1/85
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

 Substitute Form PTO-1449 (Modified) Information Disclosure Statement by Applicant (Use several sheets if necessary) 37 CFR 1.98(b)	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 12406-003001	Application No. 09/221,789
	Applicant Ulrike Reeh et al.		
	Filing Date December 28, 1998	Group Art Unit 2815	

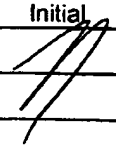
U.S. Patent Documents


Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
	AH	5-152609 ✓	06/18/1993	Japan			X	
	AI	7-176794 ✓	07/14/1995	Japan			X	
	AJ	7-99345 ✓	04/11/1995	Japan			X	
	AK	50-74875	06/30/1975	Japan			X	
	AL	7-193281	07/28/1995	Japan			X	
	AM	6-69546	03/11/1994	Japan			X	
	AN	7-42152	07/21/1995	Japan			X	
	AO							

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	AP	Excerpt from Nikkei Sangyo Shimbun; September 13, 1996
	AQ	Translation of "AP"
	AR	
	AS	

Examiner Signature 	Date Considered 11/03
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

FORM PTO-1449 (SUBSTITUTE)

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEINFORMATION DISCLOSURE
STATEMENT BY APPLICANT
(37 CFR 1.98(b))Attorney Docket No.:
96 P 1650 PSerial No.
09/221,789

Applicant

Ulrike Reeh et al.

Filing Date
December 28, 1998Group Art Unit
2815

U.S. PATENT DOCUMENTS

EXAMINER INITIALS		PATENT NO.	DATE	PATENTEE	CLASS	SUB CLASS	FILING DATE
	A						
	B						
	C						
	D						
	E						
	F						
	G						
	H						
	I						

FOREIGN PATENT DOCUMENT

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB CLASS	TRANSL. YES	NO
	J	2 347 289	04/18/74	Germany				X
	K	33 15 675 A1	11/03/83	Germany				X
	L	38 04 293 A1	08/24/89	Germany				X
	M	0 486 052 A1	05/20/92	Europe			X	
	N							

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	O	Siemens Forsch.- u. Entwickl.-Ber. Bd 6 (1977) No. 3, p. 162 [Siemens research and development reports, vol. 6];
	P	S. N. Mohammad et al.: "Emerging Gallium Nitride Based Devices", Proceedings of the IEEE, Vol. 83, No. 10, October 1995, pp. 1306-1355;
EXAMINER		DATE CONSIDERED

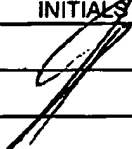
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SHEET 1 OF 1

FORM PTO-1449 (SUBSTITUTE) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT BY APPLICANT (37 CFR 1.98(b))	Attorney Docket No.: GR 96 P 1650 P	Serial No. 09/221,789
	Applicant Ulrike Reeh et al.	
	Filing Date December 28, 1998	Group Art Unit 2815

U.S. PATENT DOCUMENTS

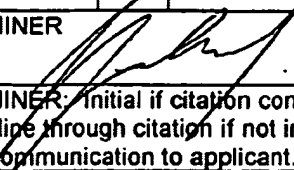

EXAMINER INITIALS		PATENT NO.	DATE	PATENTEE	CLASS	SUB CLASS	FILING DATE
	A	5,998,925	12/07/99	Shimizu et al.			
	B						
	C						
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FOREIGN PATENT DOCUMENT

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB CLASS	TRANSL. YES / NO
	J						
	K						
	L						
	M						
	N						

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	O	
	P	

EXAMINER  DATE CONSIDERED 

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Substitute Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 12406-003001	Application No. 09/288,899
Information Disclosure Statement by Applicant (Use several sheets if necessary)		Applicant Ulrike Reeh et al.	MAR 12 2004 Group Art Unit 2815
(37 CFR 1.808(b))		Filing Date December 28, 1998	

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	AA	5,424,573	06/13/1995	Kato et al.			
	AB	5,432,358	07/11/1995	Nelson et al.			
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	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation Yes No	
	AL	JP 4110236	04/10/1992	Japan				
	AM	JP 6085314	03/25/1994	Japan				
	AN	JP 8007614	01/12/1996	Japan				
	AO							
	AP							

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	AQ	
	AR	
	AS	
	AT	

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